MEARNS.

Mammals to June 24, 1894 = 3019.
Birds " " " " = 5199.

Felis tigre
Felis pardalis
✓ Felis concolor
✓ Lynx baileyi
✓ Canis lupus
✓ Canis latrans
✓ Urocyon macrotis
✓ Urocyon ocottii
Lutra canadensis
✓ Taxidea americana
✓ Taxidea berlandieri
✓ Conepatus mapurito
✓ Mephitis estor
✓ Spilogale gracilis
✓ Spilogale g. arizonæ
✓ Ursus haridens
✓ Ursus emmanoenus
✓ Procyon hernandezii
✓ Bassaris astuta
Yellow-haired Porcupine.
✓ Shrew
✓ Hoary Bat
✓ Antrozous Pallidus
✓ Vespertilio carolinensis serotina
✓ Small Pale Bat
✓ Small Brown Bat
✓ Free-tailed Bat.
✓ Antelocapra americana
✓ Cariacus macrotis
✓ Cariacus crookii
✓ Cariacus mexicanus
Cariacus pygmæus
Cervus canadensis
✓ Dicotyles torquatus
✓ Ovis americana
✓ Lepus texianus
✓ Lepus callotis
✓ Lepus nigricollis
✓ Lepus alleni
✓ Lepus arizonæ
✓ Thomomys umbrinus
✓ Thomomys

✓ Geomys clarki
✓ Dipodomys spectabilis
✓ Dipodomys merriami
✓ Dipodomys ambiguus
✓ Peridipus ordii
✓ Peridipus chapmani
✓ Perognathus penicillatus
✓ Perognathus
✓ Perognathus
✓ Perognathus
✓ Castor canadensis
Fiber zibethicus
✓ Neotoma mexicana
✓ Sigmodon
✓ Sigmodon h. berlandieri
✓ Sigmodon h. arizonæ
✓ Onychomys
✓ Onychomys
✓ Onychomys
✓ Sitomys sonoriensis
✓ Sitomys (bicolored tail)
✓ Sitomys eremicus
✓ Sitomys holzneri
✓ Sitomys
✓ Sciurus apache
✓ Sciurus arizonensis
Sciurus aberti
✓ Spermophilus grammurus
✓ Spermophilus mexicanus
✓ Spermophilus spilosoma
Spermophilus tereticaudus
Tamias harrisi
Tamias leucurus
✓ Tamias interpres
✓ Tamias dorsalis
✓ Eutamias arizonensis
Coati
Dipodomys deserti
Sitomys minima

✓ Sciurus hirsutus.

Altitudes (aneroid). - Nobles 4670
Camp at Pine Valley 4200
Dam " " " 4140
Laguna ——— 6000
alpine P.O. ——— 2275
0 = 30

Nearest monument to Warsaw --- No. 132
" " " La Asa -- " 140
" " " Paso de Luis -- " 151
" " " Naris ---- " 159
" " " Santa Rosa -- " 161
" " " Sonoyta --- " 168
" " " Santo Domingo -- " 170
" " " Quitovaquito -- " 172
Agua Dulce "
The Dam -- " 179
The Camel's Skeleton " 181
Tule Wells --- "
Tinajas Altus -- "
Adonde ---- "
Gila City --- "
Yuma --- "
Camp at Lower Corner " 204
Monument on bank of Colo. 205
" R. " " " 206
" " Hill at edge of mesa. 207
" Siren Wells, L. Cal.
Gardner's Lagoon
Alamo Mocho
Mulleday Lake, New River
Indian Wells " " ---
Laguna Station " " ---
Coyote Wells
First Water near foot of Montani Springs Station
Montani Springs Coast Range Mts.
West Side of Coast Range Mts, bet. Montana Springs and Jacumba
Jacumba Hot Springs ---
Nachoquero Valley ———
Camp, San Diego Co., California.
Cameron's Ranch do
Fr. M. Grant's Ranch L. Cal.
Hecate Valley.
Laguna ——— ———
Hecate Valley, L. Cal. ---
San Cedro Ranch, L. Cal. ---
El Nido, P. O., San Diego Co., Cal.

In the vicinity of Fort Lowell, Arizona, the following species of Opuntiae were gathered, and all identified by J. W. Toumey of the Arizona University, who is thoroughly familiar with the local species:—

Opuntia acathacarpa
" arborescens
" fructeosa
" fulgida (= the common "Cholla".

1

La Osa, Pima Co., Arizona. Dec. 8 to 28, 1893.
We camped close to Mr. W. S. Sturges's ranch. Nearest monument, No. 140.
The only water anywhere near was the Papagoes well (Poso Verde), west of the Poso Verde Mts., and a large lake (not permanent) at Buenos Ayres, 6 miles distant. Most of our specimens came from a dry watercourse running from our camp to join the Cellar River. Tho there was comparatively little wood on the surrounding hills and plains this wash was well wooded with fine hackberries, mesquites, a few glaucous white oaks and Emory's oaks. There was a good deal of undergrowth such as Baccharis, hard, etc. The neighboring Poso Verde Mts. were barren and rocky. Besides mesquite they grow a couple of species of "Palo Verde", ocheteilla, giant cereus, etc.

Mammals.—

Felis pardalis.—Mr. Sturges said one was occasionally brought in by Indians.
Felis tigre.—Out killed. See Lt. Gaige and's letter.
Felis concolor.—Mr. Sturges showed me the skin of one that was killed by Indians at Paso Verde, just across (west of) the Poso Verde Mts.
Lynx baileyi.—Said to be common. Skins.
Canis latrans.—Abundant; one taken.
Vulpes macrotis.—One killed at monument 143
Urocyon cinereoargentatus scottii.—Common.
Taxidea berlandieri?—Mr. Sturges said they were occasionally killed.
Mephitis estor.—Usually common; now scarce.
Spilogale.—Said to occur.
Ursus emamonnius.—A bear with cubs was

destroying. sheep & pigs on Mr. Sturgess upper ranch, at the base of Babakievra Peak, 20 miles (north?) of the ranch. It was shot at several times by Mexican herders while we were there but got away Bears are said to be common in the Babakievra Mts. La Casa means "the bear".

Procyon lotor hernandezii. - One was wounded by Steward Merton, at a spring down the arroya at the foot of a mountain. Racoons gave much trouble at the ranch by destroying melons and fruit.

Bassaris astuta. - The species had been taken there, but we saw none.

Dipus ~~Perognathus~~ ~~hispidus~~ Pleuriophus Pleuriophus Small pale Bat. - No. 2670 put in alcohol Dec. 10th. Not many were seen.

Antilocapra americana. - On the plains at either side of the mountains. Heard of 12 visited Mr. B, Wood's camp at monument No. 143.

Canis mexicanus. - Common in the mountains on either side.

Dicotyles torquatus. Mrs. Sturgess had several small ones brought to her by Papago Indians. Not scarce in the foothills.

Lepus texianus. - Three were seen.

Lepus alleni. - Common. This species has a very distinctive fast jumping up and alighting on its hind feet like a Kangaroo, before it finally strikes out for a free run.

Lepus arizonae. - Common.

Thomomys umbrinus. - Abundant, especially in the broad, brushy arroyos.

Dipodomys spectabilis. - Abundant except in sand. It emptied the bait-boxes of our traps very dextrously, often without springing them. When captured they usually were found to have most of the bait stowed away in their cheek-pouches. On the coldest nights they did not leave their dwellings.

Dipodomys merriami. - Very abundant; found both on hard gravel soil and in the sandy washes.

Perodipus Chapmani. - Very abundant in sandy arroyos.

Perognathus ~~penicillatus~~ Pricei. - One species; not very abundant.

Neotoma. - In rocks, at side of arroyo. Not numerous; several were taken.

Cuychomys torridus. - A small species was fairly common; several trapped.

Sitomys ereminus. - The only species of this genus found was the common, small species of the S. ereminus group. Found in rocks.

Spermophilus grammurus. - Scarce; living in rocks where there were oak-trees near. Pouches contained seeds of weeds & mesquite.

Tamias harrisi. - Common in the Mopitani pass, on the Poso Verde trail. Seen near Laborer's ranch and the Tucson Mts., on the road to Tucson.

Coati. - Tracks of what may have been this animal were seen at Sturgess Ranch. The Coati has been taken at Rio Blanco and Warsaw, farther east.

Megatherium ?? Fragments of bone & one molar at Poso Verde.

(La Asa. Dec. 8 to 29, 1893.)

Birds:—

At the temporary lake at Buenos Ayres, 6 miles from our camp the following named water birds were seen:

Podilymbus podiceps
Lophodytes cucullatus
Anas bahamensis
Anas platalea
Anas americana
Spatula clypeata
Dafila acuta
Aythya affinis
Aythya americana
Charitonetta albeola } Abundant.
Erismatura rubida }
Ardea herodias
Grus mexicana
Fulica americana
Gallinago delicata
Actitis macularia.— Scarce.
Tringa minutilla.— Common.
Numenius longirostris.— One flock. Dec. 18th.
Aegialitis vociferus.— Common.
Aegialitis montana.— On the uplands about.

From the people living at the lake I ascertained that the following species also occur at times:—

Larus sp?
Phalacrocorax sp?
Merganser americanus.
Chen sp.
Anser albifrons.— One was shot.
Branta canadensis occidentalis
Ajaia sp.
Tantalus loculator?

(La Asa. Dec. 8 to 29, 1893.)

Plegadis guarauna.— Abundant in autumn.
Pelecanus erythrorhynchus.— Two seen once.
Phalaropus tricolor.— Common in autumn.
Recurvirostra americana.— Often seen.
Himantopus mexicanus.— do
Tolanus melanoleucus. do

Besides these aquatic species, about this lake were seen enormous flocks of Arctic Bluebirds (Sialia arctica), Titlarks (Anthus pensilvanicus), Otocoris, Chrysomitris mccowni, Calcarius ornatus, and Archibuteo ferrugineus.

In the immediate vicinity of our camp at La Asa were seen:

Aegialitis vociferus.— Occasionally a few.
Aegialitis montana.— Flocks everywhere on open grassy lands, whether plain or hills.
Callipepla gambeli.— Common.
Callipepla squamata.— Only one flock seen near this place, not far from the Custom House at Buenos Ayres.
Colinus ridgwayi.— Mrs. W. S. Sturges saw three and killed one or two close to her house before our arrival.
Meleagris gallopavo mexicana.— Occasionally seen (not by us) in the Barba Nueva Mts., and Pah Narita Mts., where a few have been shot according to Mr. Sturges and Mr. Chas. W. Crampton.
Zenaidura macroura.— Common; large flocks.
Melopelia leucoptera.— Several tame ones kept by Mrs. W. S. Sturgess, to whom they were brought by her friends, the Papagos. She fed them chiefly on giant cactus seeds. None were seen wild, but the species is common in summer.

(La Osa. Dec. 8 to 29, 1893.)

Cathartes aura. - Common; seen daily; roosted in a large Emory oak in cañon.
Circus hudsonius. - Common.
Buteo borealis calurus. - Common
Aquila chrysaëtos. - Occasionally seen. Near Warsaw there is a nest.
Falco mexicanus. - Several were feeding on Mountain Plover.
Falco richardsonii. - One seen Dec. 11th.
Falco sparverius desertícolus. - Common.
Asio wilsonianus. - A ~~fa~~ family (?) lived in a grove of hackberries in an arroyo. Two specimens were taken. Seen Dec. 11th and Dec. 22, 1893.
Nyctala acadica. - One taken Dec. 17, 1893
Bubo virginianus subarcticus. - Several.
Dryobates s. harrisi. - Common.
Melanerpes erythrocephalus. - Rather common.
Colaptes cafer. - Common.
Sayornis saya. - Common. Singing.
Alaudidæ
Corvus corax sinuatus. - Common.
Sturnella neglecta. - Common.
Scolecophagus cyanocephalus. - One ♂ shot at Buenos Ayres Dec. 18th.
Carpodacus mexicanus frontalis. - In flocks.
Calcarius ornatus. - Flocks on grassland
Rhynchophanes mccownii. - Flocks "
Poocaetes g. confinis. - Common.
Ammodramus sandwichensis alaudinus. - At Buenos Ayres
Chondestes g. strigatus. - Common.
Zonotrichia intermedia. - Common.
Spizella socialis arizonæ. Common
Spizella breweri. - Scarce.

(La Osa. Dec. 8 to 29, 1893.)

(No Juncos seen.)
Amphispiza bilineata. - Common.
Pipilo fuscus mesoleucus. - Abundant.
Calamospiza melanocorys. Common; large flocks.
Phainopepla nitens. - Common; feeding on mistletoe berries.
Lanius excubitoroides. - Common.
Dendroica auduboni. - Not numerous.
Oroscoptes montanus. - Not abundant.
Mimus polyglottos. - Common; silent.
Harporhynchus s. palmeri. - Scarce.
Harporhynchus bendirei. - Scarce
Harporhynchus crissalis. - Quite scarce.
Campylorhynchus brunneicapillus. - Abundant.
Salpinctes obsoletus. - Abundant.
Anthus pensilis. - Scarce.
Regulus calendula. - Scarce.
Polioptila plumbea. - Scarce.
Merula migratoria propinqua. - Two. Dec. 10.
Sialia arctica. - Always common.
Sialia mexicana. - Occasional; scarce.

Trees and plants:-
Amaranthus deflexus is the common weed of the cañons & valleys, where there is sand and brush.
Quercus glauca. - A few in petty "cañons" or ravines.
Quercus emoryi. - Scarce. A few in cañons. One tree near Mr. W. S. Sturges's ranch measured 675 mm in diameter and was about 20 metres in height. No other oaks.
Fraxinus pistaciæfolia. - In cañons. Scarce.
Populus fremontii Watson Wislizenii - Several; perhaps planted.
Salix nigra. - At Poso Verde, 3 miles west of La Osa.
Prosopis juliflora. - Common; small.

(La Osa Dec. 8 to 28, 1893.)

Chilopsis saligna. – A few in sandy wash.
Celtis occidentalis. – Common. Some were 350 m/m in diameter and 9 or 10 meters high.
Morus celtidifolia. – In cañons near rocks. Leaves mostly fallen; some green.
Acacia greggi. – Common. One tree 400 m/m in diameter and about 10 metres high. Still in leaf.
Erythrinia coralloides. – Common. In rocky arroyos.
Baccharis glutinosa +. – One or two species
Cercumnis digitata. Palmate species common.
Vitis arizonica. – A few in damp spots, in cañons, about rocks + trees.
Fouquera splendens. – On hillsides; common.
Agave palmeri. – Scarce; dwarfed.
Zephyranthes andersoni ? ? Rocky hillsides
Yucca baccata
Yucca (like angustifolia) } Scarce on hills and in cañons.
Dasylyrion wheeleri. – On Barbacoria + Pto Verde Mts.

Small Box Turtles (Cistudo) were said to be abundant, appearing in large numbers after heavy rains. Mrs. W. S. Sturges had several semi-domesticated ones in the court-yard of the hacienda, one of which she gave me. They lived in burrows under the adobe walls, where I found them covered with earth.

Warsaw, Pima County, Arizona.* Nov. 29 to Dec. 7/93

Felis tigris. – Said to have been killed near here.
Felis pardalis. – Tracks seen by Dr. Wheeler shot one.
Felis concolor. – Tracks seen; said to be not rare.
Lynx baileyi. – Common.
Canis (Lupus) latrans. – Rather common.
Urocyon scottii. – Common.
Mephitis estor. – Said to be common.
Spilogale do Tracks seen.
Ursus (2 species). – Several bears seen by our party in mountains near here.
Procyon hernandezii. – Not common; tracks seen.
Bassaris astuta. – Scarce.
Small Pale Bat. – Scarce
Canaceus mexicanus. – Common near.
Dicotyles torquatus. – Said to occur.
Avis americana. – A few said by Mr. Kempton to occur in neighboring Mts.
Lepus texianus } On plains near Oro Blanco
Lepus alleni } and Arivaca.
Lepus arizonae. – Very scarce.
Thomomys umbrinus. – Not abundant.
Neotoma mexicana. – Not abundant.
Sitomys (boylii) phenacus. – The only mice caught belonged to the (boylii) group; scarce.
Spermophilus grammurus. Very abundant.
Tamias harrisi. – Said to occur about Oro Blanco and Arivaca. Not seen.
Coati (Nasua). – One seen living in a Mexican dwelling. Said to be taken here occasionally.

*Description of locality at end. (page 16) Nearest monument, No. 132. (over)

(Warsaw. Nov. 29 to Dec 7, 1893.)

Birds:-

Egialitis montana.- Large flocks on the rolling, grassy country near Arivaca.

Egialitis vociferа.- A few.

Callipepla gambeli.- Scarce in the country around Ario Blanco and Arivaca. None seen just at Warsaw.

Callipepla squamata.- Scarce in region lying around, but not seen just at Warsaw.

Cyrtonyx montezumae.- Mr. Chas. W. Kempton told me that there were a few about Ario Blanco Peaches.

Meleagis gallopavo mexicana.- Mr. Kempton has seen a few, and some have been killed in the mountains in the neighborhood, but the species is scarce. None of our party saw any west of the Huachuca Mts.

Columba fasciata.- One seen Nov. 30. Flock seen Dec. 2. Very abundant at times.

Zenaidura macroura.- Abundant

Columbagallina passerina.- Said to occur; A pair seen Dec. 8 on Arivaca Creek, Pima Co., Arizona. (See H. Gaillard's letter for notes - its occurrence at Paso de Luis, etc.)

Melopelia leucoptera.- Two flocks seen Dec. , at Bear Valley. One shot

Cathartes aura.- Occasional.

Circus hudsonius.- "

Accipiter velox } "
Accipiter cooperi }

Buteo borealis calurus.- Abundant.

(Warsaw. Nov. 29, 1893 to Dec. 7, 1893)

Aquila chrysaëtos.- A few; nest an cliff occupied each year.

Falco mexicanus.- One seen Dec. 4th.

Falco richardsonii.- One seen Dec. 2nd.

Falco columbarius.- Several seen.

Falco sparverius desertícolus.- Common.

Strix pratincola.- Has been taken in mines, according to Major Holden & other residents.

Megascops a. trichopsis.- Heard at night.

Bubo virginianus subarcticus.- Common.

Geococcyx californianus.- Scarce. Some are semi-domestic at Major Holden's Cabin

Dryobates s. bairdi.- Common.

[Dryobates arizonae was not seen west of the Huachuca Mts. by us.]

Sphyrapicus varius nuchalis.- Several seen.

Melanerpes f. aculeatus.- Very abundant; feeding on acorns; 3 shot at once.

Melanerpes torquatus.- Seen on two different days (when I visited Bear Valley; one or more killed on each day.

Melanerpes uropygialis.- Not seen in the Mts. about Warsaw, but common in the low country to the northward.

Colaptes cafer.- Abundant.

Micropus melanoleucus.- Mr. Kempton says they are abundant about the cliffs in summer.

Hummers.- Abundant, but all had departed before our arrival; seen by members of the camp "only a few days" before our arrival - Nov. 29th.

[Myiarchus cinerascens was seen near Tucson the day we arrived there - Oct. 1893]

Sayornis saya. - A few.
Sayornis nigricans. - Two in the cañon, about some pools of water in the rocky cañon.
Pyrocephalus rubineus mexicanus. - A pair seen at Arivaca, Dec. 7, 1893.
Otocoris a. arenicola (strata?) Common every where in open country. Not seen in the hills about Warsaw.
Cyanocitta stelleri macrolopha. - Very abundant. Feeding on acorns; many specimens taken.
Aphelocoma woodhousei. - Abundant
Aphelocoma sieberii arizonae. - Very abundant.
Corvus corax sinuatus. - Common.
Corvus americanus. - Mr. Kempton said they sometimes appeared in flocks; and Mr. Herbert Brown says they are found in the pine forests of the Santa Catalina Mts.
Agelaius phoeniceus sonoriensis. - About corrals at Oro Blanco and Arivaca
Sturnella neglecta. - Everywhere on the plains; not abundant; not seen in the hills about Warsaw.
Scolecophagus cyanocephalus. - Abundant about Oro Blanco and Arivaca, in towns and about ranches (corrals).
Carpodacus mexicanus frontalis. - Common; feeding on mistletoe berries largely.
Calcarius ornatus. } none at Warsaw but in flocks on plains from there to La Osa. Dec. 7 to 9th.
Rhynchophanes mccownii }
Poecetes gramineus confinis. - Common
Zonotrichia q. alaudinus. - None at Warsaw but on Arivaca Creek Dec. 8.

Chondestes g. strigatus. - Common.
Zonotrichia intermedia. - Common.
Spizella socialis arizonae. - Very abundant.
Junco hyemalis shufeldti. - A few seen the first day I visited Bear Valley - Dec.
Melospiza lincolni. - Scarce.
Pipilo maculatus megalonyx. - On higher land.
Pipilo fuscus mesoleucus. - Very common.
Calamospiza melanocorys. - A few.
Phainopepla nitens. - Common; feeding on mistletoe
Lanius l. excubitoroides. - Common.
Dendroica auduboni. - Seen Dec on Bear Valley Creek
Anthus pensilvanicus. - On Arivaca Creek Dec. 8
Oroscoptes montanus. - Scarce.
Mimus polyglottos. - Rather scarce.
Harporhynchus crissalis. - On Arivaci Creek Dec. 8.
Campylorhynchus brunneicapillus. - In cañons.
Salpinctes obsoletus - Very abundant.
Catherpes mexicanus conspersus. - Cliffs of highest Mts; Scarce.
Thryothorus bewickii bairdi. - Scarce.
Certhia f. mexicana. - One seen on an oak, near Oro Blanco Rancho
Sitta c. aculeata. - A few on oak-trees.
Parus wollweberi. - Scarce at Warsaw; common at Bear Valley.
Psaltriparus plumbeus? - Scarce.
Auriparus flaviceps. - Nests in cañons.
Regulus calendula. - Scarce.
Myadestes townsendii. - A few in cañons.
Merula migratoria propinqua. - Quite common.
Sialia arctica. - Very abundant; large flocks.
Sialia mexicana. - Abundant; feeding on mistletoe.

Warsaw Jan. 29 to Dec. 7. 1

Reptiles and Batrachians:-

At this season Lizards are dormant A few small ones were taken.

Major Holden told some interesting stories of some tame ones in his cabin. They were afraid of strangers but not of him. Musk Turtles were taken from the rock tanks, which also contained Frogs, but I believe we did not get any frogs except a quantity of young tadpoles.

Plants:-

✓ Cereus giganteus. - A few in cañons on the boundary line a mile or two South.
✓ Quercus oblongifolia glauca. - The commonest oak.
✓ Quercus emoryi. - Common; some large.
✓ Quercus chrysolepis. - A small, gray oak, with spiny leaves on Mtn. Ridges.
✓ Quercus arizonica Sargent grisea. - A very few in cañons near Aro Blanco.
✓ Juglans rupestris. - A few in cañons.
✓ Platanus wrightii. - Cañons in Mtns.
✓ Pinus cembroides. - On high ridges The only pine seen west of the Patagonia Mtns
✓ Juniperus pachyphloea. - At the higher elevations. not very abundant.
✓ Cerasus serotina. - A few in cañons, near water. Prunus salicifolia H.B.K.
✓ Fraxinus pistaciaefolia. - Common.
✓ Arctostaphylos pungens. - Abundant on the mountain ridges.
✓ Populus monolifera - In cañons where there is water; not common.
✓ Populus wrightii (over)

Warsaw Jan. 29 to Dec. 7. 1

✓ Salix nigra. - In cañons near water.
✓ Salix occidentalis longipes? (Thick leaves, whitest below) Common in cañons. Leaves mostly flat.
✓ Salix taxifolia ? ("Lemon Willow"). In valley
✓ Sambucus mexicana Presl. A large species along streams.
✓ Prosopis juliflora. - Not abundant.
✓ Eulopsis pubescens - Not abundant; cañons.
✓ Ptelea integrifolia. - In high Mts.
✓ Celtis occidentalis. - In cañons.
✓ Morus celtidifolia. - In cañons beside dry
✓ Acacia greggii. - A True Species.
Acacia ____ Several dwarf species
✓ Robinia Neo-Mexicana. - High Mts.
Erythrea corallodes. - Common in cañons.
✓ Stenotus marginalis. - In open cañons.
✓ Cercocarpus parvifolius var. occidentalis Watson - On high Mts.
Kunzia tridentata. - Mts.; common.
Baccharis pteronides } Moist cañons
" glutinosa }
Lobelia splendens. - Yanks in cañons.
Cucurbita digitata Cucumis (palmate leaved). - In cañons.
Rhus ____ Several species - radicans, trilobata, etc
Vitis arizonica. - Moist cañons.
" quinquefolia do
✓ Zizyphus obtusifolia - Mts.
Hoquera splendens. - Common.
Agave palmeri. - Scarce.
Yucca baccata. - In places; scarce.
Dasylyrion wheeleri. - Mts.
Leanothus fendleri. - High Mts.
Amaranthus deflexus. - Open cañons.
Datura metaloides. - Common.
Xanthium canadensis. - Cañons + wet places

(Warsaw. Nov. 29 to Dec. 7, 1893.)

Description of Locality:—

Camp was located in a very unfavorable barren, rocky cañon. The only timber was a scant growth of glaucous and Emory's oaks. Birds and mammals, in the vicinity, were scarce, though numerous in more favorable localities in the neighborhood, which were sometimes visited, such as Bear Valley. Some of the neighboring cañons were heavily wooded with cottonwood, oak, walnut, hackberry and sycamore, but were too difficult of access to be visited satisfactorily from our camp at Warsaw Mills.

To the north of these Mts., is an open country, much lower, which was crossed in several directions in going from Tucson to Warsaw and thence to La Osa via Oro Blanco, Arivaca and Tres Bellotas (=3 Emory's oaks). In the cañons about Tres Bellotas some fine specimens of Emory's Oak were growing. Subsequently I made a trip across the same plain, from La Osa to Tucson and back via Buenos Aires and Labaree Ranch, which, together with the trip from Pozo Bueno to Santa Cruz Valley from Nogales to Tucson, in October, gave me a very good general idea of the general region. The nearest monument is No. 133.

(El Vanori),
Pozo de Luis, or "El Banorie", or Yaqui Luis's.

Pozo de Luis, Sonora Dec. 29 to Jan. 8. 1893 – 1894

Camp was made at the Indian Village, by about 5 miles from Cobata. Nearest monument, No. 175. the well of Yaqui Luis. Most of the Indians are Papagoes, though there are a few Yaquis, Luis among them. There is no cultivated land beyond a patch of an acre or two, beside, and watered from Luis's well. The camp was about four miles south of the international line, amongst the mountains, but open to the plain on the southwest. There was no bare land around, the whole region being covered with shrubs and cactus, with trees along the arroyos. Ironwood, mesquite, ~~and~~ two species of palo verde, and tall acacias formed a heavy growth along the principal arroyos; No. 175, greasewood ("Hediondilla" Spanish), ~~ocotillo~~, "cholla" and (No. 174) cactus cover the higher flats; and giant cereuses and ocotillas are abundant on the hills and mountains. On the southern slopes of the Mts., we met with the first "pitaya" cactus (Cereus thurberi) which to the westward is a conspicuous feature. The mountains are rocky. One conspicuous rock peak is called Ant Mt. ("alizna"). Deer and Peccaries are abundant; and there are bears, and lions in these mountains. Altitude of Camp (aneroid), 2376 feet.

Mammals:—

Felis tigre.— Mr. Dorsey, of Sonoyta, saw a 3-year-old horse, that had been ridden, killed by a Mexican Tigre, at La Plomo, Sonora, in the presence of several other vaqueros, who subsequently hunted it down with dogs, and "bayed" it on a rock, where one of them shot it. Scarce in this region

(Pozo de Luis. Dec. 29, 1893 to Jan. 8, 1894.)

Felis concolor. - On old dew was seen amongst some rocks near "Alizna" Peak. A few tracks were seen.

Lynx baileyi. - Holzner wounded one.

Bassaris astuta. - Tracks; said to be common. Many were poisoned at Cobalt by Mr. Beale.

Canis latrans. - Very abundant and bold. Two came close up and stood looking at me from the distance of about 10 yds., in daytime. They eat the fruit of the cactus.

Vulpes macrotis. - Said to be common.

Procyon l. psora. - Abundant in the hills.

Taxidea _____. - Not seen; said to be rather common, but local.

Mephitis } Said to occur; not seen by us.
Spilogale } Skunks are scarce everywhere now.

Ursus. - Brown & Black bears occur.

Antilocapra americana. - Not rare on the neighboring plains

Cariacus macrotis. - Two seen on level land near the base of a mountain.

Cariacus mexicanus. - Abundant; several were killed by our party.

Dicotyles torquatus. - Common in the hills. Their tracks were seen everywhere about the base of the mountains. On Dec. 31st in company of Lieut. Wm. Bean, we surprised six adults wallowing amongst some prickly pears, on the base of "Alizna" peak. The locality was a ravine. All but one ran rapidly over a ridge and disappeared; but one stood still, behind a bush, and was shot. I ran rapidly to the summit of the ridge,

(Pozo de Luis. Dec. 29, 1893 to Jan. 8, 1894.)

in the expectation of obtaining a view of them beyond, and, in doing so almost ran over the wounded pig, which I saw had its fore leg shot through close to its body. With a grunt it dashed down the hillside, through cactuses & ~~bushes~~ shrubs so thick that I was unable to get another glimpse at it. Following up the herd Lt. Bean & I obtained several more shots at the flying animals, which finally escaped, hiding in caves and amongst the rocks piled at the base of a cliff. Still later, I returned, alone, and my attention was arrested by a crying piggie, which I finally descried amongst the large joints of a prickly pear, looking very much distressed over the sudden abandonment. It was of a reddish color, whereas its parents were blackish, and in size not exceeding that of a cottontail rabbit. Supposing I might be able to catch it alive, I stooped and ~~it~~ made the attempt, whereupon it squealed and vanished so swiftly that I did not attempt to shoot it.

Later Lt. Bean rejoined me and we made a further search for the little pig, which was finally wounded. I espied it running along an open space on another ridge. Seeing where it hid, I chased it up, and fired several times at it with my rifle, but it ran so nimbly through dense brush that it was unhurt, though it ran into Lt. Bean, and he also tried in vain to either shoot or overtake it. I visited the spot the next day, but saw no Peccaries.

(Pozo de Luis. Dec. 29th to Jan. 8, 1894.)

Ovis americana. - A hunter and prospector who camped with us, said he shot at one.

Lepus texianus. - A few in the hills.

Lepus alleni. - Common. Excellent eating.

Lepus arizonae. - Abundant. Live in burrows in the earth, often amongst rocks.

Thomomys. - Abundant on high, rocky land, even at the summits of hills. Less common on the brushy flats.

Dipodomys spectabilis. - This species was common in places, but none were trapped, as no special effort was made. Coming west their mounds were seen as far as Nairs Mt.

Perodipus. - None were trapped; but unmistakable signs were seen in sandy washes.

Dipodomys. - A pale, small species was very abundant; several were trapped.

Perognathus. - Burrows & runways numerous.

Neotoma mexicana. - Common. Their houses often made of joints of cactus. Houses seen on the highest places. Several trapped, but very cunning. Houses often built in a big prickly pear.

Sitomys. - A small form of erethizon common in rocks. One large one (No.) was trapped at a burrow beneath a mesquite

[No Spermophiles were seen.]

Vamiras harrisi. - Not common; one trapped on summit of a low rocky peak.

Some small Bats were seen.

(Pozo de Luis Dec. 29, 1893 to Jan. 8, 1894.)

Birds:-

Callipepla gambeli. - Common; large flocks.

Columbigallina p. pallescens. - See H. Gaillardia letter.

Melopelia leucoptera. - Abundant in summer. Not seen by us.

Zenaidura macroura. - Rather common.

Cathartes aura. - Common.

Accipiter velox } several of each.
Accipiter cooperi }

Porabuteo unicinctus harrisi. - One Jan. 2, 1894; 5 seen Jan. 3; many seen afterwards. Usually seen sitting on the giant cereus; utters a loud, coarse scream. Seen in flocks of 5 or 6 soaring high in air. Quite shy. Feeding on colaptes.

Buteo borealis calurus. - Common.

Aquila chrysaëtos. - Several.

Falco mexicanus "

Falco sparverius deserticolus. - Quite numerous. They like to perch on Cereus giganteus.

Polyborus cheriway. - One at Nairs. Jan. 8.

Bubo virginianus subarcticus. - Not rare.

Geococcyx californianus. - Not numerous.

Dryobates scalaris bairdi. - Common.

Melanerpes uropygialis. - Abundant.

Colaptes cafer. - Scarce.

Colaptes chrysoides. - Abundant. Often seen on the ground and in low bushes or in palo verde trees.

Hummingbird? - Holzner thought he saw a hummer on Jan 6th.

Myiarchus cinerascens. - One shot Jan 4, 1894 (No. 10076)

Sayornis sayus. - Scarce.

Empidonax _____. - Specimen (No. 10,046) shot Dec 30, 1893. A pair seen together

(Poso de Luis. Dec. 29, 1893 to Jan. 8, 1894.)

Cloconis alpestris _____. – Not at Poso de Luis, but a few seen six miles northeast near Cobata.

[No Jays were seen.]

Corvus corax sinuatus; abundant; tame. Flying over cliffs of highest mountains. Gathering their "toothpicking" notes.

Sturnella neglecta. – Scarce. Singing.

Icterus sp.? – Feathers in nest of Cactus Wren + Yellow headed Icterus.

Carpodacus frontalis. – About Indians' shacks.

Calcarius ornatus. } On plains to the
Rhynchophanes mccownii } east & west of Poso de Luis.

Poocaetes g. confinis. – Scarce.

Chondestes g. strigatus. – Common.

Zonotrichia intermedia. – Common.

Spizella breweri. – Not common.

Amphispiza bilineata. – Abundant.

[No Fucacas were seen.]

Pipilo m. megalonyx. – Scarce; in Ults.

Pipilo f. mesoleucus. – Abundant.

Cardinalis c. superbus. – Reputedly seen, but none were taken.

Calamospiza melanocorys. – Scarce.

Icanis l. excubitoides. – A few.

Dendroica auduboni. – Scarce.

Oroscoptes montanus. – Not common.

Mimus polyglottos. – Common – not singing.

Harporhynchus c. palmeri. – Abundant singing.

Harporhynchus brunneicapillus. – Not abundant.

Heleodytes brunneicapillus. – Very numerous to

Salpinctes obsoletus. –

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Catherpes mexicanus conspersus. – In the mountains.

Auriparus flaviceps. – Abundant; nests.

Psaltriparus

Regulus calendula. – Scarce.

Polioptila plumbea. – Abundant; nests like cat.

Sialia arctica. – Scarce.

Phainopepla nitens. – Common.

Plants: –

No oaks or coniferae.

Populus fremontii Watson. – About the Indian village; planted

Salix nigra Marshall do

Prosopis glandulosa Torrey glabrata. – Common; not large.

Acacia (Bot. Coll. No. 171). – Abundant along arroyos.

Cucurbita digitata

Cucumis (pollinate leaved sp.). – Abundant.

Fouquera splendens. – Abundant; some in flower.

Agave palmeri. – Scarce; Mts.

Opuntia bacata. – "Alejia" peak.

Dasylyrion Wheeleri. – Mts.

Amarantus deflexus. – Abundant; some 7 or 8 ft.

Datura metaloides.

Xanthium canadense.

Cereus gigantens. – Mex. & Papago name: "Saluara." Very abundant. One, with a single arm 40 ft.

Cereus thurberi Engelm. – Mex. name. "Pitaya". Here first met with. Southern slopes of mountains.

Echinocactus wislizeni. – Abundant (Spec. 166.).

Iron wood. – Spec. No. 167. First seen about 6 miles east of Cobata. The most abundant tree. See plant record. It makes poor firewood (much ashes), besides emitting a very disagreeable odor like cow "chips" when burning. Olneya tesota Gr.

(over)

(Poso de Luis. Dec. 29, 1893 to Jan 8, 1894.)

Large-leaved "Palo Verde". - Common
A larger tree than the next. Grows along arroyos. (Spec, 168).

Small-leaved "Palo Verde." - Common.
(Spec. No. 169)

Grasewood. - (mex: "Hedionddilla") Covillea tridentata
Covers large areas.

Cholla Cactus. - A form without spines (Spec. No. 173) covered the flats and low hills, while a form thickly beset with long whitish spines occurs sparingly on the mountains. The latter was subsequently gathered with fruit at Sonoyta (No.).

"Pasajo" Cactus. - Spec. 174. Very abundant. See note in plant catalogue

"No 175." "Scrub". Common.

Baccharis pteronoides } In main arroyo.
" glutinosa }

Bouvardia trifphylla. - A very few still in fl.

Yucca - A narrow-leaved species. not abundant.

See notes on Cactaceae of Poso de Luis in memorandum book No. 11.

Sonoyta, Sonora. January 9 to 25, 1894.

Nearest monument, No. 168. Altitude (aneroid barometer), 1700 feet. The Mexican town of Sonoyta, where we camped, is near the head of Sonoyta Creek or Rio, which flows west to Quitovac = quito where it almost touches the international boundary line, and thence southwest to the Gulf of California. Some months prior to our arrival, during a period of unusual rainfall the river had washed its banks in such a manner as to destroy the system of irrigation entirely and to prevent its reconstruction. At the time of our visit only a few fields on the right side of Sonoyta Creek were under irrigation, and these from springs at some distance from the Rio Sonoyta. Trapping would have yielded better results for our mammal collection had we been there during the period of agricultural prosperity.

Below the village of Sonoyta is a settlement of Papago Indians, who irrigate large fields successfully from the Sonoyta. The ground had been well ploughed with the ingenious wooden ploughs made by the Indians.

A few miles further down the stream is the Mexican town of Santo Domingo, distant 9 miles from Sonoyta. The freshet which had proved calamitous to the people of Sonoyta, had greatly benefitted the Santo Domingo people by turning all of the water of the Sonoyta into their irrigating canal

These settlements of the Sonoyta Valley are surrounded by low mountains

(Sonoyta — Jan. 9 to 25, 1894.)

and hills, offshoots from the Sonoyta Mountains whose main peaks are 12 to 18 miles south, in Sonora. These mountains are very white, which I was told was due to a large amount of white quartz in the rock. There was a great deal of white quartz floating rock in the Sonoyta Valley, and some veins of it in the hills and river-bed (Specimens were forwarded to Washington).

These neighboring elevations are all covered with a growth of shrubbery and cactus, so that open grassy stretches are no longer visible as they are further east. The brushy region commences about 10 miles east of Paso de Luis, though there is much mesquite & palo verde on the plains stretches from there to Sueson.; but this growth is quite open and scant.

Giant Cactuses and Pitayas are scattered freely over the region, the latter preferring rocky heights. The more level tracts are covered with Cholla and Tasajo. The common (small-leaved) greasewood and the ironwood & Mesquite have a rather generally distribution, more especially the first. Cottonwoods, said to have brought from the Gila River are freely cultivated, as are figs. Along the river is a dense growth of shrubs, with palo verde, mesquite, willow, Baccharis (Coulteri), arrowwood, etc.

"Greasewood" is also a characteristic shrub; while there is an extensive

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tract of sage (Artemisia tridentata Nuttall?) to the eastward, occupying the river bottom beyond the point where the water rises to the surface.

Mammals:—

Lynx baileyi.— A dessicated one found in a dry ditch in town. Said to be rather common.

Canis latrans.— During the past season many persons had been bitten, and some had died from hydrophobia throughout this general region. One that Holzner poisoned was mangy and had no hair on it.

Mr. Joseph Wheeler showed me about a dozen skins of coyotes trapped at monument No. 151, which were in exceptionally fine pelage. One had a handsome white tip to its tail and unusually large admixture of black on the back. None were very reddish.

Vulpes macrotis.— Tracks seen; said to be common.

Urocyon U. scottii.— One seen; a dead one was found in a ditch in town.

Taxidea americana berlandieri.— Said to be rather abundant; burrow but no animals seen by us.

Mephitis estor?.— A dead one seen. No tracks or other recent signs were seen. A year or two ago the species was abundant.

Spilogale _____.— Holzner saw tracks.

Ursus _____.— Bears are found in the neighboring mountains, both sides of the line.

Procyon lotor hernandezii.— Numerous along the

(Sonoyta. Jan. 9 to 25, 1894.)

Sonoyta River and about springs containing fishes.

Bassaris astuta. - Signs & tracks. Said to be quite scarce

Felis concolor. - Occurs in the mountains.

Bats. - A few seen & heard at night

Antelocapra americana. - Small herds seen between Pass de Luis and Naris, on the plain near the and Santa Rosa Mts (monument 161).

Canacus macrotis. - Common in the neighboring mountains. One was shot at on Naris Mts. Jan. 9th. I saw horns in same Mts. A pair of horns was taken from the house of a Papago Indian, and other horns were seen.

Canacus mexicanus. - Three were seen in the Santa Rosa Mts.

Dicotyles torquatus. - Common on Naris Mts., where I saw numerous tracks. Said to be common in a high range of Mts. N.E. of Sonoyta. One was seen in December near Santo Domingo.

Ovis americana. - Horns seen in the Papago Settlement at Naris. Said to be common in the higher Mts. in Sight. The Papagos slay many, and they are consequently growing scarce. Horns seen at Sonoyta & in the Papago Settlement below Sonoyta.

Lepus texianus. - Said to be rather uncommon. Mr. Payne saw some. Neither Holzner nor I saw them.

Lepus alleni. - Quite Common. One was shot & one hunted down by Harris's Hawks.

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Lepus arizonae. - Common

Thomomys sonoriensis perpallidus. - No signs seen at Sonoyta, though the species had been so numerous as to be troublesome in the fields, when irrigation was being carried on only a few months before.

At Santo Domingo, nine miles below Sonoyta their signs were abundant; and some, mounds were seen at the intermediate settlement of Papago Indians on the River.

Dipodomys merriami. - Common. No large Dipodomys appear to be found in the neighborhood. Signs (mounds + burrows) of what were supposed to be D. spectabilis were seen as far west as Santa Rosa (Monument 161), but no specimens were taken west of La Osa [D. deserti was first taken at Ludovgiuts]

Perognathus pericellatus angustirostris. - Rather common. One was found in the stomach of a male Sparrow Hawk.

Several specimens preserved. Few caught in huts of Papagos

Neotoma mexicanus. - Common; nests about cactuses and in brush-fences.

Sigmodon. - Said to have been abundant in alfalfa fields before the irrigating canal was ~~washed away~~ destroyed at Sonoyta; and said to be now common in the fields of Santo Domingo. We saw no signs of them, & caught none in our traps.

Sitomys (merriami ? cremicus group; robust; brown spot on breast). - Not very common; about brush-fences.

Sitomys (cremicus group). A slender species. About brush-fences and huts of Papago Indians; abundant.

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Spermophilus tereticaudus. - A few at Santo Domingo

Tamias harrisii. - Said to be common. Not many seen owing to cold weather. One at Santo Domingo. Several members of our party saw "Squirrels" among the rocks at Naris Wells; but it is impossible for me to learn whether they were this species or the large "Rock Squirrel" (Spermophilus grammurus), a species that we have not seen since leaving La Osa, where the few that were trapped were the only ones seen. At Warsaw they were extremely abundant.

Note. - No Onychomys and no house rats or mice (M. musculus et decumanus were seen or heard of.]

Birds. -

There are a few small lakes and pools connected with Springs, in which a good many ducks were found. Ducks do not like the Sonoyta water, and there is no food on its sandy bottom except two species of small fishes which are abundant.

Anas boschas. - Two were shot.
Anas strepera. - One seen on a cienega.
Anas americana. - A few flocks.
Anas carolinensis. - Common.
Spatula clypeata. - A few seen.
Dafila acuta. - Rather common.
Branta canadensis occidentalis. - One small flock at Santo Domingo.

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Ardea herodias. - Rather common on Sonoyta River.
Rallus virginianus. - Two seen in a cienega, grown with cat-tails and canes.
Gallinula galeata. - Leg & feathers found beside a cienega at the Papago settlement.
Fulica americana. - do.
Gallinago delicata. - A few secured.
Egialitis vocifera. - Common.
Callipepla gambelii. - Abundant.
Cyrtonyx montezumae probably occurs, as a little Mexican boy told us he sometimes saw a large quail with white spots & white stripe on its head, and brown underneath. He said it was different from Gambel's Partridge which he was holding in his hand at the time.
Zenaidura macroura was not seen until the last day we were there, when Holzner saw one, though the species is rather common at Quitovaquito. It is evident that many birds do not like the Sonoyta river-water.
Melopelia leucoptera was said by the Mexicans to occur in summer. I saw one, daily, near a house. It enjoyed absolute freedom, roosting at night upon a tall mesquite 60 yards from the house; but a boy told me that it was a pet and belonged to the house.
Cathartes aura. - Common.
Circus hudsonius. - Scarce.
Accipiter velox, Cooperi } a few of each seen.
Parabuteo unicinctus harrisi. - Four lived in a side cañon, and hunted together like a pack of hounds, capturing Gambel's quail

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(Parabuteo unicinctus harrisi – Continued.)
and numerous Rabbits. They were quite shy. One day I made a special effort to kill some of them with my shotgun. After several long shots, which proved ineffectual, they were driven up among the hills where they ~~roosted~~ perched on the giant cereus and "Pitaya" cactuses and could not be approached near enough to be killed unless with a rifle; but late in the day I chanced, on returning, to stumble upon the spot where all four were in at the death of a large Rabbit (Lepus Alleni) which they immediately began to devour. One of them tore open its chest and devoured the heart and lungs while another was tearing shreds from its thigh. At this they displayed great strength. The remaining two were not permitted to indulge their appetites until the stronger ones were satisfied. I shot two of them, but one escaped badly wounded. The next day I returned to the spot and found two of the Hawks there again, but the remains of the rabbit had been entirely eaten, with the exception of its skull which I had carried home with me the night before.

Buteo borealis calurus. – Common; like other hawks, it likes to perch on the giant cactus

Aquila chrysaëtos. – One or two seen.

Falco mexicanus. – Several seen; one shot at the hacienda of Santo Domingo as it swooped down upon a hen.

Falco columbarius. – One adult seen.

Falco sparverius desertícolus. – Common. A favorite rostrum is on the giant cactuses.

Polyborus cheriway. – One shot Jan. 9 and several seen afterwards, usually sitting upon tall giant cactuses. Mr. Holzner & I have not seen many; but a number were seen by different persons. Mr. D. R. Payne saw one at Sturgess Well, east of La Ventana. At La Ventana (= Laborer's Ranch) Mr. Wood saw six. At Nasis Mr. Holzner saw one and Mr. Wheeler saw several. At Santa Rosa many were seen. Mr. Wood and and Mr. Wheeler each saw two on the line, north of Santo Domingo. They often perches on the ground, and is said to hide behind bushes when approached.

Bubo virginianus subarcticus. – Wounded one Jan. 18th. Feathers seen; heard at night.

Glaucidium phalaenoides. – The one shot by Mr. Holzner (No. Jan) was sitting in a thick mesquite tree when shot. No others have been seen on the boundary survey; but I shot a fine specimen in May, 1885 between Tucson and Maricopa (see record), which was likewise seen in a dense mesquite and shot.

Geococcyx californianus. – Common.

Note. – No Kingfishers were seen on the Sonoyta River though small fishes are abundant. Neither were there Mergansers.

Strybates scalaris bairdi. – Common.

Melanerpes uropygialis. - Common; feeding largely on berries of mistletoe on the mesquites. A pair fed regularly beside my tent, where, in the early morning their voices reminded me of the squeaking of children's toy animals on Xmas mornings. They have several other notes, among them a long rolling call resembling that of the Flickers.

Colaptes cafer. - Common, preferring some swampy land overgrown with young mesquites, often on the ground.

Colaptes chrysoides. - Abundant; mostly paired. In arroyos in palo verde trees, or on giant cactuses on the ridges.

Micropus melanoleucus. - On Jan. three were shot from a flock of about 50 which are the only ones seen.

Trochilus? - Mr. Holzner says he heard one here and saw a Hummer at Poso de Luis - our last camp.

Myiarchus cinerascens. - Quite common, though not abundant. Almost singing.

Sayornis saya. - A few.

Sayornis nigricans. - Common where there was water.

Pyrocephalus r. mexicanus. - Several pairs

Otocoris a. arenicola? A few flocks in fields

Cyanocitta s. macrolopha. - Specimen taken Jan , and feathers found in several places where they had been eaten by birds of prey. The remains of one was found at Quitovaquito eaten

Corvus corax sinuatus - Common in our camp, and, in fact, everywhere. Their tracks seen about the door of my tent, where they had been during my absence. Very tame until molested.

Molothrus ater _____ - About a dozen among the flocks of Red-wings & Brewer's among the Mexicans' houses. These are the only ones seen this winter. None were taken.

Agelaius phoeniceus sonoriensis. - Abundant. Sexes separate as a rule, when flying.

Sturnella neglecta. - Flocks of 25 or more about fields. Not numerous, however.

Icterus sp.? Feathers in cactus wren's nests.

Scolecophagus cyanocephalus. - Thoroughly domestic about the Mexicans' dwellings.

Carpodacus mexicanus frontalis. - Abundant, singing

Note. - No Juncos seen since leaving Warsaw, and only a few of Shufeldti there.

Poocaetes gramineus confinis. - Scarce.

Ammodramus s. alaudinus. - Common about some meadowy fields near springs.

Chondestes grammacus strigatus. - Common; flocks of 30

Zonotrichia intermedia. - Very abundant; sometimes taken in our mammal traps that were set for mice.

Spizella breweri. - Abundant; not yet singing.

Amphispiza bilineata. - Quite common.

Amphispiza belli nevadensis? - Common, especially in sage-brush flats. Only one specimen taken.

Melospiza fasciata fallax. - Very fairly common along the Sonoyta + in brush fences in fields. Not yet singing.

Melospiza fasciata montana. - In occasional flocks with the preceding but less common.

Melospiza lincolni. – Quite a number seen.
Pipilo m. megalonyx. – Scarce. One or two taken in our "eyelones" set in brush fences.
Pipilo chlorurus. – Common; a number caught in mammal traps set in brush.
Cardinalis c. superbus. – Known to occur but not seen by our party.
Calamospiza melanocorys. – Scarce.
Tachycineta bicolor ??. – A flock seen by me at a distance at Santo Domingo Jan. One shot (but lost) by Holzner Jan. Holzner thought the one he shot was most likely a Stelgidopteryx; but the first swallows positively identified were two Tree Swallows at Quitovaquito on Jan.
Chamaepelia interna. – Common, as they are everywhere where mesquites with mistletoe are found at this season.
Lanius l. excubitoides. – Common.
Dendroica auduboni. – A few seen.
Geothlypis trichas occidentalis. – A number were seen along the Sonoyta & in brush fences beside irrigating ditches at Sonoyta & Santo Domingo.
Anthus pensilvanicus. – Common along the Sonoyta & in damp fields. Seen to alight on trees.
Oroscoptes montanus. – Rather common.
Mimus polyglottos. – Not one was seen at Sonoyta, though the species is quite numerous nine (9) miles below, at Santo Domingo.
Heleodytes brunneicapillus. – Abundant; singing.
Heleodytes c. palmeri. – Abundant; singing; mated.

Salpinctes obsoletus. – Common.
Troglodytes aëdon aztecus. – Common in thickets along the Sonoyta and in brush fences.
Cistothorus p. paludicola. – Numerous amongst the cat-tails, tules and canes along the stream, and in cienegas & beside acequias.
Auriparus flaviceps. – Abundant; singing a pretty set of three notes. Mating.
Regulus calendula. – Common.
Polioptila plumbea. – Abundant.
Merula migratoria propinqua. – Frequently seen; in small flocks.
Sialia arctica. – Common. The Western Bluebird, however, was not seen.

Plants:–

Along the stream were willows, three species of Palo Verde, and a number of shrubs, beside the young growth of mesquite which is most characteristic.
Populus fremontii. – Said to have been introduced from the Gila. Bark of trunk and limbs entirely white (Spec. No. 187). Trees 3-4 centimetres in diameter and up to 10 or 12 metres in height.
Sambucus glauca. – Common along the stream; often in semicultivation about house. One tree, at Santo Domingo, I was told by Don Cepriano Ortego was 34 years old. It is 8 metres in height and measures 1½ metres around the trunk. Mex. "Sauco."
Salix nigra _____. – Common along acequias; a few along the Sonoyta –

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Prosopis juliflora.- A dense growth about 7 to 10 metres in height borders the Sonoyta, while scattered trees and bushes are found in side valleys, and all over the Sonoyta bottom. One tree measured nearly a metre in circumference and was about 8 metres in height. I saw no acacias.

Baccharis _____ (No. 190) forms an abundant growth, together with arrow-wood (No. 189), in sandy arroyos and along the main Sonoyta.

Cucumus _____ The gourd having palmate leaves is abundant. I did not see any other species.

Fouquera Splendens.- Common.

No Agaves, Yuccas, or Dasylirion seen west of Paso de Luis.

Ephedra _____.- Scarce in rocky places.

Amarantus deflexus.- Scarce.

Datura meteloides.- A species is common.

Xanthium _____.- do

"Palo de Fierro".- Very common; not large.

Prosopis pubescens.- A few Screw Beans.

Quitovaquito, Pima Co., Arizona
January 25 to February 8, 1894.
Altitude, 1530 feet (aneroid).

Description of Locality:-

Passing down the valley of the Sonoyta, from the town of Sonoyta, the valley broadens at Santo Domingo into an extensive bottom, which is largely under irrigation and cultivation. The vegetation is about the same as at Sonoyta. One new cactus (No.) is first found 3 miles above Santo Domingo.

Quitovaquito is at a number of springs emerging from a hillside on the right bank of the stream and one mile from it, at a point 5 miles below Santo Domingo. The valley is a little more than a mile wide between low mountains of coarse granite rock. The valley is covered with greasewood and shrubbery with numerous giant cereus and groups of chollas 2 to 4 metres high, more scant from their annual shedding of the joints. The arroyos are bordered by ironwoods and large & small-leaved palo verde. Mesquites border the stream, and a few Acacias are found in valleys in the hills or arroyos in the valley. A tree whose leaves are now ripe & falling, of red color, grows in arroyos & deep valleys in the hills, called Yuba de la Flacha, which is said to be very poisonous.

The soil is sandy loam & coarse gravel. The earth is covered with white alkali about the Sonoyta River & Quitovaquito Springs. From the latter several streams flow

into an artificeal lake, the overflow from which is conducted by an acequia to an extensive field of wheat and white clover, bordered by fine fig trees, and surrounded by a brush fence in which we did considerable trapping for small mammals. A few ducks and waders & one pair each of White bellied Swallows, Black Pewees, & Vermilion Fly catchers frequented the lake. There are 3 adobe houses, a warehouse, and a corral at the springs, and a small house in the garden.

Mammals: -

Lynx baileyi. - Tracks. Said to be common.

Canis latrans. - Exceedingly common and very bold. Several were shot and many trapped. One was captured in a steel-trap set under water in the middle of a pool filled with small living fishes. The trap was set for a Raccon; and the Coyote was caught by the nose. On the pan of the trap a shining piece of bright tin had been fastened.

A Coyote that was caught in a steel trap had bitten off all the bushes in reach and was very agressive when first approached I spoke to him in a sympathetic tone and won his confidence. After visiting all the rest of my traps I returned with my attendant, Private York and liberated his foot, setting him free. He lay quite still and permitted me to roll him over & over with the forked stick that I had cut to hold his head when letting him

out of the trap, never offering to bite or attempting to get away. At length I left him and returned after a quarter of an hour. He eyed my every movement, sitting up like a house dog, but did not growl or seem to be afraid. I left him there, but found that he had departed, as a matter of course, when I returned late in the day to rebait my traps I have had very much the same experience with coyotes trapped at Mesquite Springs and San Bernardino. If conquered and kindly treated afterwards, they become as docile and tractable as a broken colt, and are sometimes hard to get rid of. One at Mesquite Springs preferred to take up his abode under a table in Scott. Brown's tent, after he was let out of a trap, and had to be shot as a nuisance

They are easily trapped if the trap is covered carefully & pieces of meat strewn about it. I usually cover the steel-trap with a piece of newspaper and then sift enough dust on it to cover it over.

Coyotes eat the fruit of cactus. The seeds are commonly seen in its dejections.

Vulpes macrotis. - Common. Lives in holes in the level plain, usually amongst greasewood or sagebrush.

Urocyon virginianus scottii. One trapped in the mesquites beside the Domeyko

Very common

Perognathus baileyi. - Burrows very common.

No signs of Skunks were seen.

(over)

(Quitovaquito, Jan. 25 to Febr. 8, 1894.)

Procyon hernandezii. - Tracks in arroyo along the Sonoyta River, which contains an abundance of small fishes. Two were trapped, but one escaped.

Bassaris astuta. - Tracks.

Small Bat. - One specimen; common.

Large Bat. - One seen; not taken.

Cariacus macrotis. - Bones & horns common.

Dicotyles torquatus. - Don Cyprian Arlego saw one at one of his ranches, 3 miles south of Santo Domingo about January 5, 1894. He says they range also in the coast mountains, living in caves.

Ovis americana. - Many horns seen.

Lepus texianus. - Common. Specimen taken Febr. 8, at Agua Dulce on the Sonoyta.

Lepus alleni was not seen west of Santo Domingo. Mr. Payne saw them on the boundary line, a mile or two north of that place.

Lepus arizonae. - Abundant; one skin.

Thomomys perpallidus. - Near the Sonoyta. Two were taken; not seen east of here.

Dipodomys deserti. - Common in the Sonoyta bottomland. They do not raise elevated mounds like D. spectabilis. Not taken east of this point. Mounds of D. spectabilis (presumably) were seen as far west as 10 miles east of Sonoyta village.

Dipodomys merriami. - Very abundant in the creosote bush & greasewood & sagebrush tracks. They eat the seeds of the latter.

Perognathus penicillatus angustirostris. Many trapped about the garden, under brush-fence.

Neotoma mexicana. - Common.

Sitomys americanus. - A slender species of

(Quitovaquito, Jan. 25 to Febr. 8, 1894.)

the americanus group was abundant about the garden where numbers were trapped in brush-fences.

Spermophilus tereticaudus. - Common. Only appearing on warm days. Our first specimens were taken here, though the species is common from the Santa Cruz Valley westward; but they were not out of their burrows during the cold weather, at the season we were there. In 1885, I found this species common from Verde River, Arizona to Maricopa, & thence up the Santa Cruz Valley to Fort Lowell, where I secured a specimen & saw many others.

Sciurus harrisi. - Common. Several were seen in the granite hills and others were trapped on the flat riverbottom amongst the greasewood and sagebrush. One had mesquite beans in its cheek pouch.

Birds: -

Anas boschas
Anas strepera
Anas americana
} 4 weeks on Sonoyta River.

Anas carolinensis. - Very numerous on Sonoyta and a few on the artificial lake at Quitovaquito.

Spatula clypeata
Dafila acuta
} on Sonoyta River at Agua Dulce.

[Note. - Mr. D. D. Gaillard has written (see his letter) me that a soldier killed several Tantalus loculator on the Sonoyta River.]

Ardea herodias. - Common. There are no frogs in the Sonoyta, but two species of small fishes are abundant.

(Quitovaquito. Jan. 25 to Feb. 8, 1894.)

Ardea tricolor ruficollis. - One flock of six seen Jan. 27 to Febr. 5th. and a flock of eleven seen on the morning of February 7th.

Gallinago delicata. - One seen on the Sonoyta. Common about Quitovaquito Springs

Totanus melanoleucus. - A flock of three seen at the artificial pond at Quitovaquito Springs Febr. 5th to 8th.

Numenius longirostris. - One seen Jan. 29.

Aegialitis vocifera. - Common.

Ballispila gambeli. - Common.

Zenaidura macroura. - A good many, came, at dusk, to drink at the Springs.

Cathartes aura. - Common. Several caught in steel traps baited with meat. One was preserved, the rest set at liberty.

Accipiter velox } a few seen.
Accipiter cooperi }

Parabuteo unicinctus. - Five stayed together on the line, 3 miles east of Q.

Buteo borealis calurus. - Common.

Falco mexicanus. - Several.

Falco sp. desertícolus. - Common.

Polyborus cheriway. - Two or three pairs were seen in the vicinity. Where there was carrion they were sometimes seen on dry mesquites with Turkey Buzzards. They were often seen on giant cactuses. Very shy; one was wounded. Seen, also, at Santo Domingo.

Asio wilsonianus. - One was eaten by some bird of prey on a giant cactus,

(Quitovaquito. Jan. 25 to Feb. 8, 1894.)

at the foot of which its remains were scattered.

Bubo virginianus subarcticus. - Scarce.

Geococcyx californianus. - Several seen.

[Though fishes were abundant there were no Kingfishers on the Rio Sonoyta.]

Dryobates scalaris bairdi. - Several were seen.

Melanerpes uropygialis. - Very common. They came to the Mexican ranch-house daily and ate meat & fat that the Mexicans had hung up in a mesquite tree in front of the door.

Colaptes cafer. - Several were noted.

Colaptes chrysoides. - Common.

Calyptae costae. - Seen Febr. 1 to 8. This is probably the species seen at Posa de Luis, Yaris, and Sonoyta, earlier in the winter.

Myiarchus cinerascens. - One Jan 27th and one February 6th.

Sayornis sayae. - Rather scarce.

Sayornis nigricans. - Scarce.

Cyanocitta stelleri macrolopha. - There must have been a flight of them through the Sonoyta Valley. One was shot at Sonoyta. Remains were also found, at Sonoyta, of some that had been eaten by birds of prey. At Quitovaquito, under a mesquite on the bank of the Sonoyta, I gathered the quills of one that had been plucked by a bird of prey.

Corvus corax sinuatus. - Abundant; very tame; mating. Swell up their throats when love-making. When chasing each other, their notes are curious.

Agelaius p. sonoriensis } Occasionally
Scolecophagus cyanocephalus } seen.

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Sturnella magna neglecta. - Commonly seen in marshy ground around the Springs.

Carpodacus mexicanus frontalis. - One flock of about 200 often seen.

Povacetes gramineus confinis. - A few.

Anmodramus s. alaudinus. - A few.

Chondestes gr. strigatus. - A few small flocks.

Zonotrichia intermedia. - Common.

Spizella breweri. - A few.

[1st No Juncos seen since leaving Warsow.]

Amphispiza bilineata. - A few.

Amphispiza belli nevadensis. - Common. Very shy. In sagebrush plains. Like to go to the riverbank.

Melospiza fasciata montana. - One.

Pipilo chlorurus. - One flock of 4 on Jan. 30. A few single ones seen.

Pipilo fuscus mesoleucus. - Scarce.

Calamospiza melanocorys. - One shot on Febr. 1st. No others seen.

Tachycineta bicolor. - Two male Tree Swallows flew around the artificial lake at Quitovaquito Spgs. on the morning of February 9th. No others.

Phainopepla nitens. - Abundant. Feeding on mistletoe berries of the mesquites, ironwoods & palo verde-trees. Male has a succession of peculiar notes which may be called a song.

Lanius l. excubitoroides. - Common.

Dendroica auduboni. - A few.

Hattura persilvanicus. - Common. Seen to alight in trees.

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Oroscoptes montanus. - Common.

Harporhynchus palmeri. "

Harporhynchus crissalis. - A few pairs.

Heleodytes brunneicapillus. - Common.

Salpinctes obsoletus. - Common.

Catherpes mexicanus conspersus. - Cañons of neighboring mountains; scarce; singing.

Troglodytes aedon azteeus. - A few.

Auriparus flaviceps. Heard commonly.

Regulus calendula. - A few.

Polioptila plumbea. - Common. The male sings a low sweet song.

Merula migratoria propinqua. - A few.

Sialia mexicana. - Scarce; eating mistletoe berries

Sialia arctica. - Quite common.

Vegetation at Quitovaquito. -

Populus fremontii monolifera?. - One tree at Quitovaquito Springs.

Salix nigra. - One or two at Quitovaquito Springs.

Sambucus glauca. - Under semi-cultivation at the ranch, watered by ditch from Quitovaquito Springs.

Prosopis juliflora. - Fine specimens near edge of Sonoyta River. Common.

Acacia greggii. - Arroyos; not abundant.

Cereus (Prosopis pubescens) Thurberi. "Tornilla". - At Quitovaquito Springs. This is common on the Upper Rio Grande in Texas; not again noted until we reached the Santa Cruz River; next seen here; abundant along the Gila from Gila Bend to the Colorado, and on the Colorado at Ft. Mojave.

Baccharis sp.? - Called "Batamoti" by the Mexicans. Common on Sonoyta River.

(Quitovaquito Jan. 25 to Febr. 8, 1894.)

Jessaria borealis? Arrowweed, having purple flowers; called "Cachanilla" by Mexicans. Grows commonly with the whitish flowered Baccharis along Sonoyta River.

Cucumis land-leaved sp. – Common.

Fouquera splendens. – Common on the hills.

[No Agave, Dasylirion, Yucca or Beargrass seen.]

Ephedra sp. _____. – Common on the hills.

Amarantus deflexus. – Not a characteristic plant, as it is last of Pozo de Luis.

Datura meteloides Sp. – Occasional.

Xanthium ("Cadillo" in the Mexican) (Canadensis?) – Sonoyta River. Called

Large-leaved (Cercidium torreyanum) Palo verde. – Common on arroyos. Some trees 2 ft diameter by 30 ft. high. A few trees have pods on still. Mostly confined to edges of arroyos.

Small-leaved (Parkinsonia microphylla) Palo verde. – Not so large a tree as the above; more generally distributed; seen up to the tops of the neighboring low mountains. No pods on trees at this season.

Long-racked (Parkinsonia aculeata Linnaeus) Palo verde. – None just at Quitovaquito, but a few are scattered along the Sonoyta above Quitovaquito. In the neighborhood of La Osa, in the Pozo Verde hills it is a common tree. Often growing in cultivation at Tucson.

Ironwood (Olneya tesota Gray). – The commonest tree. Not confined to arroyos, but not as often seen on mountains as the Small-leaved Palo verde, except in cañons.

"Mangle" (Dalea spinosa?). – Not a dusty looking spiny tree grows in arroyos of the Sonoyta. Also seen at Tule Wells and at various points on the Gila River always

* The "Pitaya" cactus bears an excellent fruit, ripe in July and August. The Papago Indians eat it extensively. They also eat the fruit of the "Cirista" cactus.

(Quitovaquito. Jan. 25 to Febr. 8, 1894.)

in the beds of sandy arroyos. It endures drouth fully. A few large leaves come out at base of these shoots

Plant with waxy leaves & purple fl. (No.) ("Guanvii")

Larrea tridentata (Mex. "Gobernadora ó Hedionda"). – This covers large areas of the broad river bottom, alternating with areas of the next.

Dasycoma (Artemisia tridentata Nuttall?) (Mex. name: "Chamizo"?). – Seedlings.

The cactuses are:

Cereus giganteus (Mexican name: "Sahuaro"). Common. "Square Cactus" (" " "Cirista"). This begins about 10 miles west of Quitovaquito, and extends nearly to the Dam, a distance of 15 miles. Not seen anywhere else (section).

Cereus thurberi Engelm. (Mexican name: "Pitaya"). This first appeared on south slopes of mountains about Paso de Luis, thence common on hills & mountains (occasionally on level plains) west to Agua Dulce, on the Sonoyta River. Very common here. (section). Fruit edible

Cereus _____. – A low species with numerous long, yellow spines is common

A spreading cactus (No.) first appeared at a point between the Mexican villages of Sonoyta & Santo Domingo. This does not cross the Gila Desert to the westward.

A small, whitish cactus, now bearing small red fruitage, grows on rocks. Its longer spines are slender fish-hooks.

Echinocactus wislizeni. – Common; some large. (Mexican name, Vizcaya.

Echinocactus sp. spines; grows on low, level tracts near the Sonoyta. First seen here

(over).

(Quitovaquito Jan. 25th Feb. 8, 1894.)

Cylindropuntia _____. - The tall, arborescent cactus called "Cholla" by the Mexicans grows handsomely here. The fruitage is refreshingly acid; grows one fruitage out of another thus .

Cylindropuntia _____. - The arborescent cactus called "Tasajo" by the Mexicans seems sparingly here, and extends to the Gila Mts., while the true "Cholla" was not seen west of the Sonoyta Valley.

Cylindropuntia sp. _____. - A small species of Cholla. begins with the "Cimita" a few miles west of Quitovaquito, growing in rocky places, especially in cañons of granite mountains such as the Gila Range.

Platopuntia sp. _____. - The coarse species of Prickly Pear, or Tuna, seems to end in the hills of the Sonoyta near Santo Domingo. ~~It~~ no species of Prickly Pear was ~~was~~ seen west of there, until A small grayish species of the subgenus Platopuntia appeared was first seen on the eastern edge of the plain between the Gila and Gila Ranges. ~~It~~ The latter grew to the tops of the highest peaks of the Gila Range, from the boundary line to the Gila River.

Two shrubby, slender, arborescent cacti are common at Quitovaquito, of which specimens (Nos.) were taken at Poso de Luis, etc. They both occur at Ft. Lowell.

Canes large enough for fishing poles and Cat-tails (Typha) grow along some parts of the Sonoyta River near Cabeza Prieta.

"Yerba de la Flecha." Arrowweed. (No.)
A small bushy tree in cañons and along arroyos. Naris Mt. to the Dam, 25 miles west of Quitovaquito. Said to be very poisonous. The leaf, boiled in a cup of coffee is said to have killed an adult. At this season most of the outermost leaves have been shed & those within are of a beautiful scarlet color. It has a double-seeded fruitage (Specimens of fruit, wood & leaf).

A coarse Composite called "Chicura" grows along arroyos. The large leaves are dry, and rattle (Specimens of leaves only) grows here in abundance. Its range is from Posa de Luis to the Gila Mts.

"Rama amarilla" is another common herb (Spec.).

A shrub having waxy leaves & purple flowers is called "Cuanvir". Ranges, along arroyos, from Sonoyta to the Gila Mts. Adonde; Gila City.

Notes on the Colorado Desert.

(Ft Yuma, Cal. to Mt. Spring Cañon, Coast Range.)

April 7 to May 7, 1894.

Itinerary.-

Left Ft. Yuma, Cal. April 7 + marched to Cook's Wells, about 15 miles, Fr

April 8. Marched to Seven Wells, about 8 miles.

April 18. " " Gardner's Lagoon, about 10 miles

April 27. " " Lagoon on Salton River, near monument 218, about 12 miles.

April 28. Marched to Unlucky Lake & New River, about 10 miles.

May 3. Marched to Laguna Station, New River, San Diego Co., California, about 15 miles.

May 6. Marched to Coyote Wells, about 18 miles

May 7. Marched to the lowest water in Mountain Springs Cañon, at base of Coast Range Mountains, altitude 1600 feet, displacee brig, about nine miles

The only side trips were a few rides up Salton River from Seven Wells and Gardner's Station towards the point at which the Salton crosses the boundary line, at monument 218, and a one-night camp at Indian Wells (May 4 + 6), from Laguna Station (monument 224) for trapping. Steward visited Sentinel Mt. May

From April 7th to 28th our camps were on the course of Salton River (then nearly dry), running nearly west and parallel to the boundary line, a few miles south of it, in Lower California.

From April 28 to May 6th our camps were on New River, which was then dry excepting a few shallow lagoons such as Unlucky Lake and Laguna Lake, a few miles

north of the boundary line, where we made our camps. The water evaporated rapidly and these lagoons must soon be dry. At New River, near Laguna, there is usually a large lagoon called Mesquite Lake. This however was entirely dry. At Indian Wells there was scarcely a bucketful of water to be had.

Thus our route lay along the Salton (south of the line) from the Colorado to monument 218, along New River from monument 221 to Laguna Station, and thence across the desert to Mountain Spring.

On account of the extreme heat we made the last march from Laguna Station to Coyote Wells by night. The only vertebrates were Coyotes & Rattlesnakes. Three of the latter sounded their warnings close under my horse's feet.

The whole region from the Colorado River to Coyote Wells is low. The last portion along New River, from monument 219 to 223 is considerably below the sea level. Unlucky Lake & Laguna Lake are below the level of the sea.

From Coyote Wells the ground rises to the base of the Coast Range mountains, our camp at the lowest water being 1600 feet (aneroid) and Mountain Springs 2500 feet (aneroid).

Mammals.—

Lynx ~~rufus~~ eremicus Mearns. ~~baileyi~~. — This Lynx, of which we saw numerous skins in Yuma, Arizona, and amongst the Yuma Indians about old Fort Yuma, California, exhibits a peculiar pallor of coloration on the deserts bordering on the Colorado River. I shot the only one that was killed by our party, in the dry bed of New River, a few miles northwest of Laguna Station — an ~~old~~ female that was lying in wait for a flock of Gambel's Partridge that was feeding near it.

Note. — We saw no signs of either of the larger species of the cat family in crossing the Colorado Desert. Felis concolor is quite common in the mountains of the Coast Range limiting the desert on the west; but we saw nor signs of it on the desert, nor did I hear of any near the lower portion of the Colorado River [One in bounty was paid for Lynx killed in Yuma Co., Arizona in notes.].

Canis latrans. — Abundant clear across the desert; upon reaching the mountains, in the western portion of San Diego County, coyotes were much scarcer, having been killed off in large numbers, by hunters, for the bounty of $5.00 each. About Jacumba & other camps many skeletons of coyotes were seen that had been skinned by hunters who killed the majority of them by poisoning meat with Strychnine. No other species of Canis (except dog) were seen on the Colorado Desert by our parties.

Vulpes macrotis. — This is an abundant mammal clear across the Desert. Many skeletons were seen, and its tracks were as numerous as those of the Coyote. It feeds largely on the large Dipodomys deserti, which is locally abundant, colonies, but not scattered all over the desert. It lives in burrows in the sand into which it disappears when approached. One or two were seen lying near the openings of their burrows, into which they dived when an attempt was made to get near enough to shoot them.

Procyon P. psora. — Though this species prefers rocky hills or mountains, some were seen on the desert, as well as on the banks of the Colorado River. The hunters and Indians about Yuma had several of its skins. I found a skeleton of one at Seven Wells, on Dalton River, L. Cal.; remains were also seen at and several places on the Colorado Desert.

Note. — We did not obtain the slightest evidence of the occurrence of any species of Otter on the streams and lagunas of the Colorado Desert.

Taxidea sp. ——? — Badgers are common on the desert we killed none. On May 5th I found the remains of one on New River, San Diego Co., Cal., near Laguna Station, and preserved it in the collection. I regret that we were unable to obtain another spe

Mephitis sp. ——? — A skunk of this genus had been numerous some time previous to our journey across the Colorado Desert.

(Reptiles of.)

; but we were unable to capture or even see a living one, though I sometimes smelled them while encamped at Seven Wells. Their remains were seen as far west as Unlucky Lake, on New River, where I picked up a skull (No. 3501).

Note. - No Species of Conepatus or Spilogale was seen by us. [No Species of Bear.]

Procyon lotor hernandezii. - Raccoons were abundant at all of our camps along the Salton River, and at Unlucky Lake, on New River; but we saw no tracks as far westward as Laguna Station, on New River. One that Mr. Holzner killed at Seven Wells, on Salton River was cooked and eaten. It made a savory dish, which our hungry appetites caused us to greatly relish

Note. - We obtained no evidence of the existence or occurrence of the Civet Cat (Bassaris) on the Colorado Desert.

Note. - No Shrew or Mole was found. The only one of these found on the boundary line between El Paso and the Coast Range was a single specimen of a Shrew (Notiosorex crawfordi) caught at Long's Ranch (= San Luis Springs), N. Mex.

[At Laguna, San Diego Co., Cal., we saw the raised pathways of a mole. This species is said to make these subterranean channels in abundance during the rainy periods, but to remain inactive during the dry ones. We saw no fresh channels and consequently were unable to trap any. Some ranchmen living there say they are large, blackish moles.

Bats. - At Yuma, on the Colorado River, bats were abundant, especially about the old Fort, on the California side. Dr. J. Mycteris yumanensis presented me with several specimens (Nos. 3467 to 3472) which were either skinned or put into alcohol.

But, on the Colorado Desert, all species were scarce. In the old Stage Station, at Indian Wells a number of desiccated Bats (Eumops californicus (Bayd). Nyctinomus macrotis) were obtained from the Natchemi; but no living ones were seen in crossing the desert.

A few Bats, of the "small pale" species were seen at each of our camps, and they were abundant at the eastern base of the coast range mts., where Mr. Holzner and myself each obtained a few specimens. the same or a similar species

Antelocapra americana. - Though not abundant, there are still some antelope upon the Colorado Desert. We saw their tracks near Gardners & Laguna Stations.

Canacus maearhis. - Tracks and remains were numerous about Gardner's, Laguna and Indian Wells. Further South, in Lower California, the species occurs in large herds, during the winter season.

Some of the tracks seen at Gardner's may have been made by Co. V. mexicanus.

Six Mule Deer were killed from a herd, near Black Butte, L. Cal., by Mr. Samuel Cameron, who presented me with the horns of the largest buck (No. 3630). This species is known throughout this region as the "Buro Deer", and is supposed to be different from the "Black-tailed Deer" of the mountains of the coast.

Canis v. mexicanus. - No deer were killed by our party. Tracks were numerous about Salton and New River; some of those on Salton may have been this species.

Ovis montanus. - Numerous on the isolated mountains of the Colorado Desert, in Lower California; sometimes they are killed on the desert plain, but at such times are probably passing from one range to another.

A few horns and bones were seen in crossing the desert. As soon as the Coast Range was reached we saw many horns and some fresh tracks about some of the rugged peaks.

My Indian hunter, Miguel, told me he had slain many of them on some mountains that he pointed out west of the mouth of the Colorado River, in L. Cal.

A ranchman told me that some of his cowboys had roped and captured a mountain sheep on the desert near Mesquite Lake.

Note. - Dicotyles does not range to the westward of the Colorado River.

Lepus texianus. - Not abundant, but a few were seen at each of our camps on the Colorado Desert. Several specimens were obtained by Mr. Holzner and myself. Of these, the palest was one killed by Mr. Holzner in the eastern foothills of the Coast Range, just as we were about to enter the dragon pass leading across the range. He also

obtained a young specimen of the same form at same place. These may represent a new subspecies. (Note. - Examine carefully a pair of lower jaws in my collection from Laguna Station).

Lepus arizonae. - Cottontails were common clear across the Col. Desert, especially where there was any mesquite growth, or arrowweeds along the watercourses. Numerous specimens obtained by Mr. Holzner myself. These animals were much preyed upon by Coyotes and Foxes.

Thomomys perpallidus? - This species was nowhere abundant, though occasionally seen at several places, notably at Gardners station and Gardners Laguna, where its mounds were not infrequently noted. It is perhaps more numerous during seasons of unusually high water, dependent upon the amount of overflow of the waters of the Colorado River. Best one specimen was obtained (No. 3499).

Dipodomys deserti. - This species extends clear across to the base of the Coast Range. It is not as numerous, to the westward west of the Colorado River as it is to the eastward. It is much preyed upon by Foxes, Badgers, and raptorial birds.

Dipodomys merriami. - This species was common westward to the point where the Salton River crosses the international boundary into the U. S. West of there it was only taken at Indian Wells, on New River. No small Dipodomys was seen between Indian Wells on New River, and our first camp west of the divide of the Coast Range (?), but our examination

Perognathus penicillatus angusticostris A species (see numerous specimens taken) was common on both edges of the desert, becoming rare in the middle of it, as was mammal life in general. When the coast Range was reached (Mr. Apgar Jacumba) we obtained a larger darker form of the same (*Perognathus fallax* in abundance). The desert phase was very abundant at Coyote Wells, near the eastern base of the Coast Range. Several were floating dead in one of the wells & some were trapped during the night that we were camped there.

Castor canadensis grondator. - Beavers are common on the Colorado, and doubtless sometimes ascend Salton and New River during overflows, but we saw no signs.

Fiber zibethicus pallidus On the shores of a good-sized laguna near Gardners Station, on which we were encamped for some time, there were numerous heaps of *Anodonta* shells, such as Muskrats leave about their feeding grounds, but we saw no other indications of their presence.

Neotoma cumulator. - The large form of Wood Rat found in abundance on the shores of the lower portion of the Colorado River, extends its range up the Salton and New Rivers to points beyond the boundary line in California. From Ft. Yuma, to Cook's Wells their dwellings were conspicuous under almost every mesquite-tree. Coyote melons

were usually amongst the heterogeneous materials piled up about their enormous nests. More than 500 of these gourds were counted in one of these heaps, together with enough other materials to fill a large wagon-bed. We drove several of them out by setting fire to their mounds of debris. It is in this way that the Indians capture them. They are eaten by Indians and Mexicans — prescribed for invalids by Mexican physicians according to Capt. Martinez. The branches of the large mesquites of this region are gnawed extensively and to the extremity of the longest branches.

Whether the Col. R. form extends any further than the rank growth of mesquite which ends between Cook's and Seven Wells or not I cannot say until after an examination of the specimens collected west of that point has been made. Mesquites are found all along Salton & New Rivers and west of them at Indian Wells & in the cañons of the Coast Range; but the peculiar growth of large spreading trees in the rich, alluvial bottoms of the Colorado and Salton does not extend much beyond Cooks Wells; and it may be that the species of neotoma taken west of that point is a different one.

Erginodon h. eremicus Merriam. - This species extends along Salton River as far as Seven Wells growing gradually scarcer as the stream recedes from the Colorado River. Found in the growth of arrowwood

torridus perpallidus Merriam

Onychomys sp. ? :- Holzner trapped specimen at Seven Wells. No others were seen east of ~~Dutch~~ Tacumba.

Sitomys crenicus - The specimens in Mr. Holzners collection are the only records we have of this species and the next on the Colorado Desert. Perhaps some of the specimens supposed to be *S. crenicus* are really *S. sonoriensis*.

Sitomys (bicolored tail). - Mammal life grew more and more scarce as we went westward, until at last, it was hardly worth our while to put out the traps. The record of the specimens trapped by Mr. Holzner gives all of our knowledge of this species on this desert.

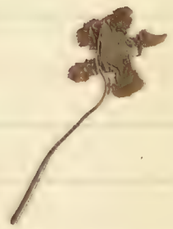
Dipodomys Peromyscus stephensi Merriam. (male, type) - One was caught at the first water in Mountain Springs Canyon at the eastern base of the Coast Range Mountains, on May 8, 1894. I think I have others sent me by H. Stephens. This species was not met with later, though we trapped assiduously at Mt. Springs & to the westward. It was caught among granite bowlders.

Spermophilus tereticaudus. - Common, but not not generally abundant, along the Dalton & new Rivers to the boundary line and thence westward as far as Coyote Wells. Especially common, however, near Indian Wells on New R. No other species of *Spermophilus* was found on the desert, unless *Tamias lecurus* is put in that genus.

Tamias lecurus. - Not met with until we reached the eastern edge of the Coast Range. It was first found on entering the wagon pass through the mountains. At Mountain Springs & Tacumba it was abundant. Ten young ones were taken from one burrow at Mountain Spring, on May 14th. The species was last seen about 10 miles west of Tacumba, in some rocky hills bordering a cañon, near the widow Hayden's ranch. Near Tacumba, on the plain called Tacumba Flats, these Chipmunks were common on level ground living under sagebrush, much as the *Spermophilus tereticaudus* does; but in the cañon at the head of Tacumba Creek, it lives in the most rugged mountain sides. Its tail is carried vertically when it runs and it continually utters a trilling call that sounded on the car, at various distances, all the time we were camped at Mt. Springs. Its cheeks were always filled with seeds or green vegetation. Sometimes it is very shy, while at other times it is abundant and tame.

Perognathus ? - A few were trapped by Holzner at Seven Wells and Gardners Laguna.

Description of Collecting Stations on the Mexican Boundary Survey.



No.	Date March 1894	Name	Sex and age	Locality.	Length	Alar extent	Wing	Tail	Culmen	Tarsus	Middle toe and claw	Remarks
1045 33	27	Larus occidentalis	♀ juv.	Cal. R. below Hardy's Ranch.								Iris grayish brown.
1045 34	27	Larus delawarensis	♂ ad.	do	663	1570	453	192	56	71	71	Bill tipped with horn color & dusky; plumbeous. Feet flesh-color, claws dusky.
1045 35	27	"	♂ imm.	do	535	1280	395	168	43	61	50	
1045 8 36	27	Larus brachyrunchus	♀ ?	do	520	1240	382	165	45	60	50	
1045 9 37	27	Chen	♀ ad.	do	495	1215	382	148	41.5	55	48	
1046 0 38	27	Chroicocephalus Texensis	♂ ad.	do	712	1440	422	160	53	79	75	Oesophagus filled with carrion roots ~~mutilated~~. Preserved in alcohol.
1046 1 39	28	Larus delawarensis	♂ ad.	do	236	575	195	121	7.1	15	20	
1046 2 40	28	"	♀ ad.	do	520	~~1260~~ 1260	389	172	45.5	63	49	Irides straw-color. Bill and feet yellow, with claws and subterminal band on bill black. Eyelids carmine. Inside of mouth bright vermilioned.
1046 3 41	28	Sterna caspia	♂ ad.	do	482	1165	365	150	41	55	46	Iris hazel. Bill vermilion, with a large blackish subterminal space, a corresponding area on under mandible. Tongue horn-color.
1046 4 42	28	Ardea occidentalis	♀ ad.	do	560	1325	426	169	71	48	46	Feet black; claws black, tipped slightly with horn-color. Length to end of claws, 1290. Iris straw color, eyelids with red. Bare space in front of eye yellow. Bill yellow, with tip of mandible dusky & a dusky line along culmen. Legs & feet black. Hind tib. 6 and claw, 290. Iris brown. Bill black. Legs & feet pale grayish blue; claws plumbeous black.
1046 5 43	28	Recurvirostra americana	♂ ad.	do	1000 (end cl. 665)	1475	410	170	114	157	104	
					486	813	246	103	101	106	52	

No.	Date 1894 March	Name	Sex and Age	Locality.	Length	Wing from bend	Wing	Tail	Culmen	Tarsus	Middle toe & claw	Remarks.
10422 1	23	Harporhynchus crissalis	♀ ad.	Cenicja, 30 miles South of Monument No. 204 on Col. Riv.	309	327	101	148	35	32	30	
10423 2	24	Salpinctes bullocki	♂ ad	Colonia Diaz, Sonora	206	326	102	85	19	25	22.3	The first one seen this year.
10424 3	24	Callipepla gambeli.	♀ ad.	Head of the Gulf of California	279	371	116	103	10.8	32	346	
10425 4	24	Falco s. sparverius	♂ ad.	Colonia Diaz, Sonora.	268	570	189	133	12	38	31.5	
10426 5	25	Ammodramus rostratus	♂ ad.	Mouth of Col. Riv., Mexico.	155	246	75	59	13.5	23	22	Iris brown. Bill brownish purplish black above and at extremity of mandible; basal two-thirds of mandible and edges of maxilla at base purplish flesh-color. Tarsi light brown; toes dark brown. The bills & feet all tasted of salt. Probably ranges only as far as tide water extends up the Colorado River.
10427 6	"	"	♂ ad	do	156	246	73	58	14.4	24	23	
10428 7	"	"	♂ ad.	do	159	245	74	57	14.2	23.5	22.2	
10429 8	"	"	♂ ad.	do	157	248	75	57	14.6	23	22	
10430 9	"	"	♀ ad.	do	145	217	64	52	13.6	20	19	
10431 10	"	Ammodramus s. alaudinus	♀ ad.	do	138	228	70	55	10.	20.5	20	
10432 11	"	" " "	♂ ad.	do	141	235	73	59	10.5	21.	19.	
10433 12	"	Spizella s. arizonae	♂ ad.	do	145	230	72	65	10.3	18	?	
10434 13	"	Cistothorus sp.	♂ ad.	do	122	159	49	46	13.3	19	17	
10435 14	"	Anas cyanoptera	♂ ad	do	427	670	200	90	45	35	30	Mated pair.
10436 15	"	" "	♀ ad.	do	400	635	190	93	42	32.5	44	Positively a female
10437 16	"	Circus hudsonius	♀	do	537		385	283	19	80	57	
10438 17	26	Aythya s. americana	♂ ad.	do	237	392 1280	128	100	23.5	31.5	31	Mid. claw, 10 mm.
10439 18	26	Corvus (Corax) sinuatus	♂ ad	do	620	1280	430	260	68 74	70	68	
10440 19	26	Sayornis nigricans	♀ ad.	do	178	280	87	80	14	19	16	
10441 20	26	Cistothorus sp.	♀ ad.	do	123	165	51	47	14	19	17.5	
10442 21	26	" "	♀ ad	do	123	161	51	47	14	18.5	17.9	
10443 22	26	Ammodramus rostratus	♀ ad.	do	145	227	71	65	13.8	23	22	
10444 23	26	" "	♂ ad.	do	156	241	75	59	14.5	23.5	23.	
10445 24	26	" "	♂ ad.	do	157	242	74	59	15.2	23	22	
10446 25	26	" "	♂ ad.	do	154	243	73	57	14	24	23	
10447 26	26	" "	♀ ad.	do	150	226	70	54	13.5	23	21	
10448 27	26	" "	♀ ad.	do	145	225	68	52	14.	23	21	
10449 28	26	" "	♂ ad.	do	150	231	70	63	15	23	24	
10450 29	26	" "	♂ ad.	do	158	245	77	60	13.3	23	23	
10451 30	26	Chen	♀ ad.	do	725 254	1480	416	158	59 34	82	75	Iris hazel. Bill & processes at base of mandibles white. Culmen spotted with brown-color & grayish black. Basilar portion of both mandibles reddish purple. Feet purple. Claws plumbeous.
10452 31	27	Sturnella mexicana	♂ ad	do	254	406	129	82	135	41	33	
10453 32	27	Munia polygastra	♂ ad.	do	269	360	120	135	19	31	28	
10454 33	27	Larus (see page 192).		do								

(over to page 192)

No	1894 March	Name and Locality.	Sex and Age	Length	Tail vert	Tail hairs	Ear from notch
Las Cruces, Col. R. at Cuesta, 30 m S. of Mont 204							
1	23	Spermophilus ~~spilosoma~~ tereticaudus	♀ad	220	92	115	3
2	23	Thomomys perpallidus	♀ad.	194	70		
3	23	Vulpes macrotis	ad.	Skull in alcohol. Skull & tail			
		Contained 2 embryo fœtuses.					
4	24	Thomomys	♀ad.	214	68		
5	24	Sigmodon h. arizonæ	♀ad.	271	121		15
6	24	" " "	♂ad.	263	112		16
7	24	" " "	♂ad.	280	128		15.5
8	24	Peromyscus texanus deserticola Ditomys "bicolor".	♂ad.	176	80		14.8
9	24	" "	♂ad.	168	75		15
10	24	" "	♂ad.	176	78		14.2
11	24	" "	♀ad.	185	86		15
12	24	"	♀ad.	161	73		14.3
13	24	Reithrodontomys Ditomys "pygmæus".	♀ad.	147	74		12
14	24	" "	♂ad.	145	76		12
15	24	" "	♂juv.	126	64		
16	24	"	♀ad.	152	80		11
17	24	Peromyscus texanus deserticola Ditomys "bicolor"	♂ad.	These four (4) were preserved in alcohol. No. of sack, 78			
18	24	"	♀ad.				
19	24	Reithrodontomys Ditomys "pygmæa"	♂ad.				
20	24	Perognathus penicillatus	♂ad.				
21-25	25	Peromyscus texanus deserticola Ditomys bicolor". Females	♀♀	Preserved in alcohol. Metal tag No 79			
26+27	25	" " Males	♂♂	do " " " 80			
28	25	Sigmodon h. arizonæ	♂juv.	do " " " 80			
29	25	" " "	♀ad.	252	109	15	
30	25	" " "		268	115	15	
31	25	"		253	109	15	
32	25	Peromyscus texanus deserticola Ditomys bicolor "	♂ad.	183	88	13	
33	25	" " "	♀ad.	194	89	15	
34	25	" " "	♀ad.	181	90	14.3	
35	25	" " "	♀	165	75	14	
36	25	" " "	♂juv				
37	25	" " "	♀juv				
38	25	" " "	♀juv				

Ear notch	Between eyes	Diameter of eye	Length orbit	Nose to eye	Center of jugular to Ear	Ear from Ear	Except	End hair	Front limit from sternum	Manus	Pes	Hind limit from Nose	197 Wt	Class.
													36.5	
Neck-pouches contained a good deal of grass, no. of metal tag 91 (91). Preserved. Found partially eaten by the roadside.										26	8		30	4.
										27			31	
Contained 4 fœtuses.													32	
													33	
													34	
													21	
													21	
													~~21~~ 22	
													~~21~~ 22	
Contained four fœtuses.													22	
													21	
													17.5	
													17.5	
													18.6	
alcohol. Metal tag No 79														
do " " " 80														
do " " " 80														
Contained four fœtuses.													31	
													33	
													32	
													22	
													22	
Contained 3 large fœtuses.													22	
													21	

No.		1894 March	Name and Locality.	Sex and age.	Length.	Tail vert.	Tail hair	Ear from crown.	Ear from notch.	Bot. expd.	Diameter of eye.	Longest radiating hair.	Nose to eye.	Centre of pupil.	Ear	Tip of ear	Occiput	End of tail to end of hind foot.	Fore limb from axilla.	Manus	Claws.	Hind limb from knee.	Sex	Claws.
39	25		Sitomys	♀ juv.	Grayish coat.																			
40	25		Sigmodon h. arizonae	♂ ad.	Tail broken off. Head + body		130	15.5															32	
41–46	26		Peromyscus texanus deserticola Sitomys "bicolor"	♀♀	Preserved in alcohol					Metal tag No. 81														
47+48	26		" " "	♂♂			do			"	"	"	"	82	same metal tag (82).									
49	26		Sigmodon h. arizonae juv.	sex?			do			"	"	"	"	82										
50	26		" " "	♀	240	106		14															31	
51	26		Peromyscus texanus deserticola Sitomys bicolor	♂ ad.	183	81		15															22.2	
52	26		" " "	♂ ad.	168	71		14															21.3	
53	26		" " "	♀ ad.	180	80		13.7															21	
54	26		" " "	♂ juv.	157	72																		
55	26		" " "	♂ juv.	120	56																		
56	27		Sigmodon h. arizonae	♀	244	108		14.8															32	
57	27		" " "	♂ juv.	217	102																		
58	27		"	♀ ad.	238	108		14.8															31	
59	27		Peromyscus texanus deserticola Sitomys bicolor	♂ ad.	173	75		13.8															22	
60	27		" " "	♂ ad.	Tail broken			12.5															22	
61	27		" " "	♂ ad.	162	70		12.5															21.5	
62	27		" " "	♂ juv.	122	58																		
63	27		Sigmodon h. arizonae	—	Mutilated. Preserved in alcohol.					Metal tag No. 83					same tag									
64+65	27		Peromyscus texanus deserticola Sitomys bicolor.	♂♂	Preserved in alcohol					Metal tag No. 83														
66–68	27		" " "	♀♀	Preserved in alcohol					Metal tag No. 84														
69	28		" " "	♀ juv.	105	46																		
70	28		" " "	♂ juv.	124	57																		
71	28		Sigmodon h. arizonae	♀	276	130		15															32	
72	28		" " "	♂ juv.	254	126		15															32	
73	28		"	♀ ad.	Tail broken. Head + body		150	15.5															31	
74	28		Peromyscus texanus deserticola Sitomys bicolor	♂ ad. ♀ ♀	Preserved in alcohol.					Metal tag No. 86.														
75 to 80	28		" " "																					
81 to 83	29		" " "	♀ ♀ ♂ ♂	Preserved in alcohol.					Metal tag No. 90.														
84+85	29		" " "		" "					" " " " 92														
86 to 88	29		Sigmodon h. arizonae	♀ ♀ ♂	Preserved in alcohol.					Metal tag No 90.														
89	29		" " "	♂	"			"		" " " " 92.														
90	29		Lepus arizonae	♀ ad.	Skull only.					" " " " 95.														
91	29		Sus	♂ ad.																				

Alcoholics

85 Striped Snake. Col. Riv, opposite the mouth of Hardy's Colorado River. March 26, 1894.

87 Striped Snake and Head of Sea Turtle. March 27, 1894. Mouth of Col. River, Sonora.

88 Oesophagus of Eel filled with cadrizo roots on which it lives.

89 "Mamy" "Fiddler" Crabs from the Colorado River (east shore) opposite the mouth of Hardy's Colorado River. March 27, 1894

Also

3213 Lizard. Slightly mutilated. Metal tag detached. La Casa, left bank of Colorado River, 25 miles south of U.S. Border, in Sonora. March 23, 1894

Little Annie Mason
Has a happy face on
She reads of birds and bowers
And talks of early flowers.
She shows her silver medal.
As she treads the cycles pedal.
The children's eyes with envy burn
When she says 'tis Doctor Mearns
These pretty gifts have sent
And for her they all are meant
For her kind friend in ElPaso
Hem lest thanks sends this lass to
May to Clark he vow he returned
Gladning lowing

Annie Judkins Mason